

THE BLACK AND WHITE OF IT: BLACK BEARS AND THEIR WHITE PINES

- Story and Photos by Lynn Rogers -

Black bears prefer being around trees. They are best adapted to eating forest foods that can be obtained without digging, and they need trees for shade and escape. They exist without trees only in cool tundra regions where grizzly bears have been extirpated and there are few other predators of cubs.

To black bears, not all trees are created equal though. In the forests of northeastern Minnesota, bears definitely prefer to be near majestic white pines. In an area that I studied for six years, mothers with cubs made over 90 percent of their spring beds at the bases of gnarled old white pines that comprise less than one half of one percent of the trees available in that area.

Towering white pines, with their soft, furry-looking needles, are also the favorites of many human Minnesotans. White pines live up to 600 years and are reminders of the huge white pine forests of presettlement times. The present forest of smaller, shorter-lived trees is dotted with towering white pines that are easily recognized on the horizon by their upward sweeping, unevenly spaced branches.

Probably the biggest reason black bears make their beds near big white pines is the white pine's bark. Old white pines have deeply-furrowed, strong bark that make them easier for cubs to climb for safe refuge. Cubs often fall from trees with flaky bark, like spruces, jack pines, and red pines, and the often fall from trees with smooth bark like birches and the upper branches of aspens.

For example, I saw a mother that was attentively leading her three four-pound cubs from a den to a big white pine in early spring when the cubs were suddenly startled into trying to climb an aspen. The lower bark of the aspen was rough enough for the cubs to climb, but the mother climbed up behind them and tried to pull them down. The scared cubs continued to climb, and when they reached the smoother bark halfway up, all of them fell. In this case there were no predators at the base of the tree to catch them, and the cubs appeared unhurt.

White pines have another advantage for bears in spring before deciduous trees leaf out. White pines offer shade to escaping cubs that may spend hours in trees until danger passes. Bear fur can reach 185 degrees Fahrenheit in the sun. The need for shade becomes a matter of life and death when panting can no longer keep body temperature below 104 degrees.

The long, strong branches of white pines provide greater safety to cubs than do other trees in northeastern Minnesota. One day, we watched a territorial female chase an intruding yearling up an aspen and out onto a branch. The angered sow simply bit off the branch. In that case, the yearling survived the 40-foot unbroken fall. A big white pine would have had strong branches that could not be easily bitten off and many tiers of branches below to catch the bear or break the fall.

By summer, cubs are expert

climbers and it is less important for mothers to leave the cubs near white pines. By then, cubs are foraging with their mothers, and the families are beginning to feed on berries in patches that are often far from white pines. The mothers will then stop to rest and nurse in day beds away from white pines, but for 88 percent of their overnight beds, mothers lead cubs up to a mile to certain old white pines.

Old white pines are also important in winter. They are often hollow and often the only trees large enough to serve as dens. Black bears, especially pregnant mothers prefer hollow trees for dens because trees are better insulated and provide better protection against predators than most other dens. Big, open, hollow trees have become rare due to persistent harvest. In all my research, I found only three. All three were in a single 200-year-old stand in the Boundary Waters Canoe Area Wilderness where they were protected from harvest, and all were used as dens. The practice of "salvage harvesting" scarce old white pines robs wildlife of unique habitat that cannot be replaced with smaller trees.

Minnesota once had 3,500,000 acres of white pine. After a century of cutting, only two percent of that acreage (67,000 acres) came back as white pine and is all that remains. Other forest types replaced the white pine, and only scattered white pines remain over most of Minnesota's traditional white pine range. Big white pines, 40-70 inches in diameter, have

become extremely rare.

Two of the reasons for poor regeneration after harvest are a human-introduced disease called blister rust and a greatly expanded deer population that eats seedlings. The climate in northeastern Minnesota is especially conducive to blister rust. Nurseries are experimenting with rust-resistant seedlings, but even if they're successful it will be more than a century before the seedlings can replace trees that are cut today. By contrast, white pines are so prolific in New England that the tiny state of New Hampshire now has sixteen times more white pine acreage than does Minnesota.

In northeastern Minnesota, as white pines become more scarce, they become more precious as seed trees and wildlife habitat. At the same time, their timber value increases, so harvest continues. In Superior National Forest, white pines now comprise only four percent of the harvest but generate nearly twenty percent of the timber revenue, about a million dollars a year, and there is pressure from industry to increase cutting on public land as supplies on timber industry land are depleted. In stand after stand, the last white pine seed trees are being cut for their high timber value, and white pine acreage decreases further.

White pines are important but probably noncritical components of black bear habitat in northeastern Minnesota. As the pines disappear, mothers will be forced to use other trees for cub refuges. Cub survival may decline but probably not enough to jeopardize the bear population. In other parts of the black bear range, other tree species not found in northeastern Minnesota perform similar ecological roles. Hemlocks, certain oaks, and other pines with easily climbed bark are examples.

Whether or not white pines are critical to other species in Minnesota is unknown because few other species have been studied as intensively as bears. Bald eagles in northeastern Minnesota prefer white pines so strongly for nest sites that 80 percent of their nests are in these scarce trees, according to a U. S. Forest Service survey.

The future of white pine in Minnesota depends upon whether they are cut to maintain current jobs or are conserved as seed trees for future forests for people and wildlife. Forest managers realize that the remaining white pines on public land belong to all Americans and not to any special interest group.

With 98 percent of Minnesota's white pine forests already eliminated, managers are ready to increase planting efforts and reduce white pine harvests to sustainable levels if the public demands it. This would help maintain this heritage for all its values, including its values to black bears.

Author Dr. Lynn Rogers has spent 28 years [1967-1995] conducting award-winning research on black bears and their habitat for the U.S. Forest Service, Minnesota Department of Natural History, University of Minnesota, and the Wildlife Research Institute. He pioneered many of today's bear research techniques, including habituating wild black bears to researchers in order to record all activities, habitat use, and food consumption during 24-hour periods throughout the year.

